



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

PT-101H4

HDMI Repeater and Format
Converter

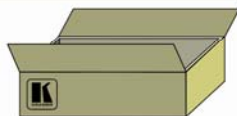
P/N: 2900-000707 Rev 2

PT-101H4 Quick Start Guide

This page guides you through a basic installation and first-time use of your **PT-101H4**. For more detailed information, see the **PT-101H4** User Manual. You can download the latest manual at <http://www.kramerelectronics.com>.

Step 1: Check what's in the box

- ☒ **PT-101H4** HDMI Repeater and Format Converter
- ☒ 1 Power supply (5V DC)
- ☒ 4 Rubber feet
- ☒ 1 Quick Start sheet
- ☒ 1 User Manual



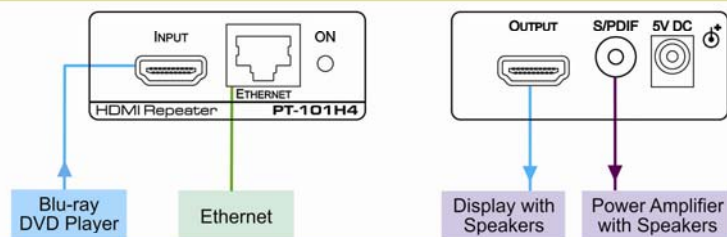
Save the original box and packaging in case your PT-101H4 needs to be returned to the factory for service.

Step 2: Install the PT-101H4

Attach the rubber feet and place on a table or mount the machine in a rack (using an optional RK-4PT rack mount).

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **PT-101H4**.



Always use Kramer high-performance cables for connecting AV equipment to the **PT-101H4**.

Step 4: Connect the power

Connect the 5V DC power adapter to the **PT-101H4** and plug the adapter into the mains electricity.



Contents

1	Introduction	1
2	Getting Started	2
2.1	Achieving the Best Performance	2
3	Overview	3
3.1	About HDMI—General Description	3
3.2	About HDCP	4
3.3	Defining EDID	5
4	Defining the PT-101H4 HDMI Repeater and Format Converter	6
5	Connecting the PT-101H4	7
6	Technical Specifications	8

Figures

Figure 1: PT-101H4 HDMI Repeater and Format Converter	6
Figure 2: Connecting the PT-101H4 HDMI Repeater and Format Converter	7

1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **PT-101H4 HDMI Repeater and Format Converter**, which is ideal for the following typical applications:

- Multimedia installations
- Home cinema installations

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
Use Kramer high performance high-resolution cables



Go to <http://www.kramerelectronics.com> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).



Caution: No operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **PT-101H4** away from moisture, excessive sunlight and dust

3 Overview

The **PT-101H4** is a high-performance repeater and format converter for HDMI signals. The unit combines previous HDMI formats and Ethernet to provide HDMI (v1.4 HEAC) and de-embedded audio over S/PDIF.

The **PT-101H4** *HDMI Repeater and Format Converter*:

- Extends the transmission range to up to 35m (115ft) with 1080p @60Hz resolution
- Features reclocking and equalization
- Provides HDMI support on the output
- Supports up to 2.25Gbps bandwidth
- Combines an HDMI 1.3 signal with Ethernet to produce an HDMI (1.4 HEAC) signal
For Ethernet connectivity, an HDMI 1.4 version output cable must be used.
- Outputs S/PDIF audio from the Audio Return Channel of the HDMI output signal
- Passes the HPD (Hot Plug Detect) and CEC (Consumer Electronics Control) signals from the display to the source device
- Provides EDID PassThru—Passes EDID/ HDCP signals from source to display

3.1 About HDMI—General Description

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital audio/video interface, widely supported in the entertainment and home cinema industry. HDMI ensures an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions. It delivers the maximum high-definition image and sound quality in use today. Note that Kramer Electronics Limited is an HDMI Adopter and an HDCP Licensee.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC.

In particular, HDMI:

- Provides a simple interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy cable

SIMPLICITY - With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced.

LENGTHY CABLE - HDMI technology has been designed to use standard copper cable construction at up to 15m.

- Supports standard, enhanced, high-definition video, and multi-channel digital audio on a single cable

MULTI-CHANNEL DIGITAL AUDIO - HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats.

- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements
- Benefits consumers by providing superior, uncompressed digital video quality via a single cable, and user-friendly connector
HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner.
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports CEC, two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play
- Has the capacity to support existing high-definition video formats (720p, 1080i, and 1080p), standard definition formats such as NTSC or PAL, as well as 480p and 576p

3.2 About HDCP

The High-Bandwidth Digital Content Protection (HDCP) standard developed by Intel, protects digital video and audio signals transmitted over DVI or HDMI connections between two HDCP-enabled devices to eliminate the reproduction of copyrighted material. To protect copyright holders (such as movie studios) from having their programs copied and shared, the HDCP standard provides for the secure and encrypted transmission of digital signals.

3.3 Defining EDID

The Extended Display Identification Data (EDID) is a data-structure provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the **PT-101H4** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.

EDID is defined by a standard published by the Video Electronics Standards Association (VESA).

4 Defining the PT-101H4 HDMI Repeater and Format Converter

Figure 1 defines the PT-101H4.

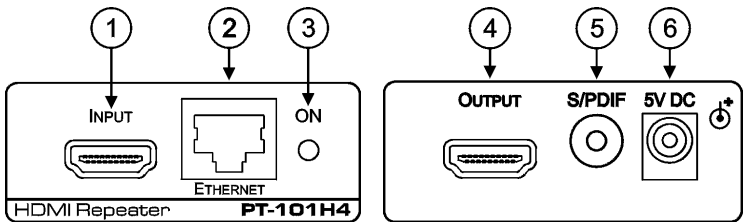


Figure 1: PT-101H4 HDMI Repeater and Format Converter

#	Feature	Function
1	INPUT HDMI Connector	Connect to the HDMI source
2	ETHERNET CAT 5 RJ-45 Connector	Connect to the Ethernet LAN
3	ON LED	Lights red when the unit receives power and no devices are connected; lights orange when receiving power and a device is connected to either the input or output; lights green when receiving power and both the input and output are connected to devices
4	OUTPUT HDMI Connector	Connect to the HDMI acceptor
5	S/PDIF RCA Connector	Connect to the digital audio acceptor
6	5V DC Power Connector	Connect to the power adapter, center pin positive

5 Connecting the PT-101H4

To connect the **PT-101H4** as illustrated in the example in [Figure 2](#):

1. Connect the HDMI source (for example, a Blu-ray disc player) to the INPUT HDMI connector on the front of the **PT-101H4**.
2. Connect the ETHERNET RJ-45 connector on the front of the **PT-101H4** to the LAN using CAT 5 twisted pair cable.
For Ethernet connectivity, an HDMI 1.4 version output cable must be used.
For best performance, use Kramer cables.
3. Connect the OUTPUT HDMI connector on the rear of the **PT-101H4** to the HDMI acceptor (for example, an HDMI display).
4. Connect the S/PDIF RCA connector on the rear of the **PT-101H4** to the digital audio acceptor (for example, a home theater system).
5. Connect the 5V DC power adapter to the power socket on the **PT-101H4** and to the mains electricity (not shown in [Figure 2](#)).

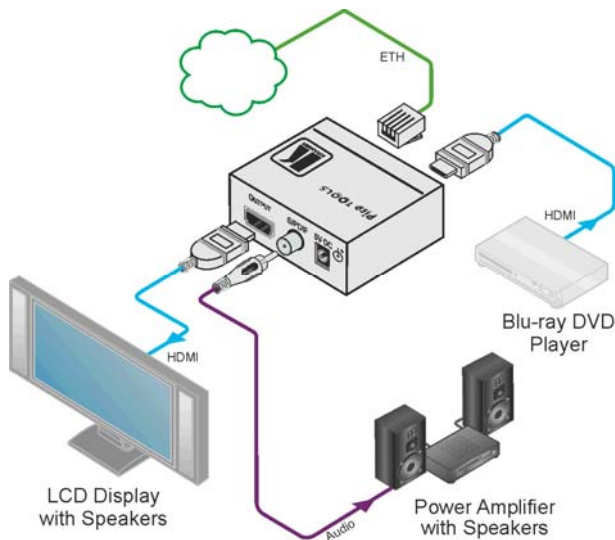


Figure 2: Connecting the PT-101H4 HDMI Repeater and Format Converter

6 Technical Specifications

INPUT:	1 HDMI connector 1 Ethernet on an RJ-45 TP connector
OUTPUTS:	1 HDMI connector 1 S/PDIF on an RCA connector
MAX. DATA RATE:	Supports up to 2.25Gbps per graphic channel
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP
POWER SOURCE:	5V DC, 450mA
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	6.2cm x 5cm x 2.4cm (2.44" x 1.97" x 0.94"), W, D, H
WEIGHT:	0.3kg. (0.67lbs) approx.
ACCESSORIES:	Power supply
OPTIONS:	RK-4PT 19" rack adapter
Specifications are subject to change without notice at http://www.kramerelectronics.com	

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
 - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
 - ii) Product modification, or failure to follow instructions supplied with the product
 - iii) Repair or attempted repair by anyone not authorized by Kramer
 - iv) Any shipment of the product (claims must be presented to the carrier)
 - v) Removal or installation of the product
 - vi) Any other cause, which does not relate to a product defect
 - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on your product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

- EN-50081: "Electromagnetic compatibility (EMC);
generic emission standard.
Part 1: Residential, commercial and light industry"
- EN-50082: "Electromagnetic compatibility (EMC) generic immunity standard.
Part 1: Residential, commercial and light industry environment".
- CFR-47: FCC* Rules and Regulations:
Part 15: "Radio frequency devices
Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.
* FCC and CE approved using STP cable (for twisted pair products)



For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

Web site: www.kramerelectronics.com

E-mail: info@kramere1.com



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing